



Item Unique Identification (IUID) Implementation Plans

Essential Information for Planners

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28 September 2016



Contents

- What is Item Unique Identification (IUID) and how does it relate to serialization?
- Why is IUID important to the Army and DOD?
- What are the stages of IUID Implementation?
- Which Items require IUID?
- What are the responsibilities of the lifecycle manager of “Tangible Personal Property”?
- What are the major topics that need to be addressed in an IUID Implementation Plan?
- How can the use of Systems Planning and Requirement Software (SYSPARS) help produce a good implementation plan?
- The importance of the quality assurance of marks.
- What, historically, have been high risk areas in IUID planning and implementation?
- What future changes in IUID policy and implementation are expected?
- Where can a planner find information/get help?

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IUID / UII Definitions

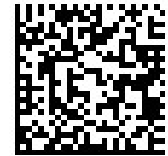
- Item Unique Identification (IUID) means a system of marking items delivered to the DOD with unique item identifiers that have machine-readable data elements to distinguish an item from all other like and unlike items. “IUID” generally refers to the program, rather than the data.
- Unique Item Identifier (UII) means a set of data marked on items that is globally-unique, unambiguous, and robust enough to ensure data information quality throughout life and to support multi-faceted business applications and users. The UII is the data.

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The UII is Like a Social Security Number - for Things

IUID Simplified

1. Assign an item a globally-unique identification number[1]
2. Register that number and supporting pedigree information in a central database
3. Apply a permanent machine-readable mark, containing that Unique Item Identifier (UII), to the item[2]



4. Use that globally-unique identification number for life cycle management of the item



5. DOD and Army transition to use of IUID involves:
   - The marking of millions of items meeting IUID criteria that are already in the inventory and of others that are being acquired
   - Automated systems enabled to use the UII



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1 Will functionally replace the SN
2 Enables error-free data transfer

Serial Number (SN) vs. UII







SN is Not Globally Unique

SN 00002345

UII Is Globally Unique







UII: Unique Item Identifier

Serial Number (SN) vs. UII (Cont'd)

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UII=D12374HW76-2100002345



UII=D44L2300002345



UII=D7932800002345

SN is Not Globally Unique

SN 00002345

UII Is Globally Unique



UII=D9VW0100002345



UII=D88102443270000234 5



UII=D68D2200002345

UII: Unique Item Identifier

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Transitioning to IUID - a Simple Concept

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SERIALLY MANAGED

BECOMES IN EFFECT

UNIQUELY MANAGED

D192071005678

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MANUAL DATA ENTRY

BECOMES

AUTOMATED DATA ENTRY

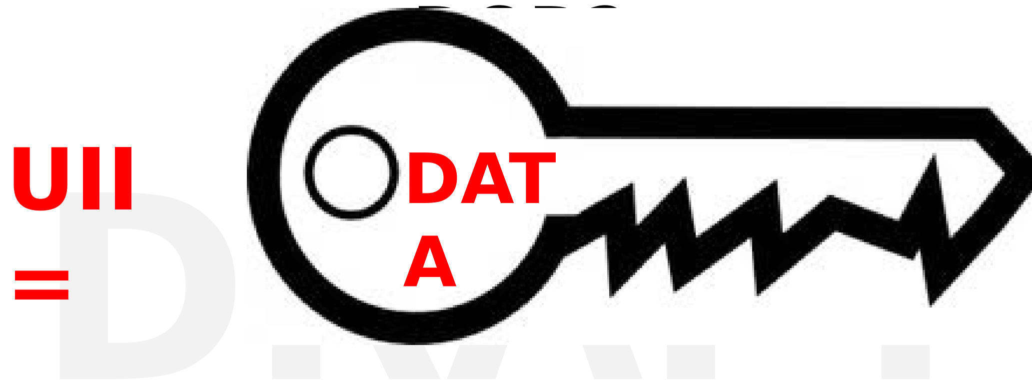




IUID: Item Unique Identification

Importance of IUID

Why is IUID Important to the Army and



Enables reliable unique item level traceability across all DOD business systems.

UII is a <u>single</u> data element that identifies a thing.

Encoding the UII

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BUSINESS RULE #1

"The UII shall be derived from its discrete component data elements or UII data set encoded as a single element. The UII is not required to be marked on the item as a separate data element."

UII Construct #1[1]

UII Construct #2[2]

[1] This example uses Text Element Identifiers
[2] This example uses MH10.8.2 Data Identifiers
* Or Lot Number, or Batch Number

*Commercial and Government Entity

EID:	Electrically Initiated Devices
IAC:	Issuing Agent Code
IUID:	Item Unique Identification
UII :	Unique Item Identifier

IUID- Essential to Materiel Readiness



Functions supported by IUID

Speed and Precision in Data Capture

Capabilities

Requirements

Objectives

Financial Management
Warranty Management
Tracking Item Performance & Age
Failure Analysis
Reliability Improvement
Engineering Design Analysis
Maintenance Productivity
Supply Productivity
Safety
Accountability
READINESS!

Value

Processes

Analysis

Information Systems

Supply Chain Events

Uniquely Identified Items

Automated Data Collection

Machine Readable Marking

Strategic Serialized Asset Management

Item Unique Identification (IUID)

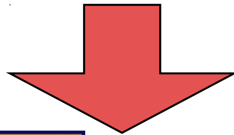
Unique Item Identifier (UII

Payback

Resources

Automatic Identification Technology (AIT) is Key to IUID Data Integrity

D123455513HGR131365748676350009

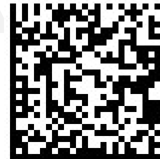


UII can contain up to 50 characters



Goal:
Eliminate key entry of data!





Today
Imager Enables Error-Free Data Transfer



Tomorrow?



Each uniquely identified item must bear a data matrix symbol encoding the data from which its Unique Item Identifier (UII) is derived

Stages of IUID Implementation

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1. Write IUID Plan

2. Determine items to be marked

DODI 8320.04

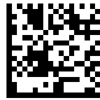
DFARS 211.274-2 & 252.211-7003

Army Directive 2016-21

AR 700-145

Focus of:
- **MATDEVS**
- **IMMCs**

I

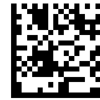




Determine and document how and where to mark

Focus of:
- **MATDEVS**
- **Suppliers**
- **Depots**

II

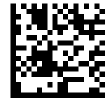




Mark items and register pedigree information

Focus of:
- **Suppliers**
- **Depots**
- **Service Bureaus**

IV





Use the Unique Item Identifier (UII) in Business Processes – Create Value!

Involves integration of AIT in AIS

Focus of:
- **Functional proponents**
- **Automated Information System (AIS) PMs**

IMMC: Integrated Materiel Management Center
MATDEVS: Materiel Developers

Elements of an IUID-enabled Solution





MATDEV Focus

IUID-Enabled Maintenance Management

UII - Marked Property



Maintenance Management AIS Accommodating UII and AIT

Automatic Identification Technology (Readers)

CL VII

CL II and IX*

GCSS-A

GCSS-A

* Marked at maintenance trigger events

AIT: Automatic Identification Technology	UII: Unique Item Identifier
AIS: Automated Information System	CL: Supply Class
IUID: Item Unique Identification	GCSS-A: Global Combat Support System - Army

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Items Requiring IUID

- Which Items require IUID?
  - NOTE: OSD is in the process of revising the IUID requirement. DODI 8320.04 was revised in Sep 15. A corresponding DFARS 211.274-2 revision is pending. AR 700-145 was revised in Feb 16. A new interim Army Serialized Item Management (SIM) Policy was published as Army Directive 2016-21 in May 2016. The DOD Guide to Uniquely Identifying Items, Version 3.0, will likely be updated to reflect the new IUID criteria.
  - Any item that is required to be serially managed in the Army will require IUID. The UII will eventually functionally replace the serial number (items will continue to have serial numbers).
  - IUID and SIM criteria apply to all tangible personal property, regardless of whether it has an NSN
  - Eventually the Federal Logistics Information System (FLIS) and WebFLIS will populate an “IUID Indicator” identifying whether each NSN requires IUID (Y/N).
  - Unit level personnel are not authorized to IUID-mark items without authorization and direction from higher HQ.

OSD: Office of the Secretary of Defense
NSN: National Stock Number
UII: Unique Item Identifier

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Items Requiring IUID (Cont)

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- WebFLIS and FLIS IUID Indicators
  - HQDA has taken action to begin scrubbing items for which the Army is the Primary Inventory Control Activity (PICA) to determine IUID relevance for each NSN. (USAF and USMC have done similar scrubs.) Preliminary results of those scrubs have been documented in WebFLIS* in a new field “IUID Indicator”.
  - Today, pending new IUID criteria and subsequent re-scrubbing, the WebFLIS IUID Indicator is unreliable.
- The remainder of WebFLIS-listed items have an IUID Indicator of “N”, meaning not "Y"; e.g., evaluated as "NO", or not evaluated, or evaluated as "Not Mandatory for all Services, but not prohibited for any Service.”
  - A mechanism for Army item managers to challenge a WebFLIS IUID Indicator decision has not yet been announced.

•Remember that the authoritative source of whether an item requires IUID within the Army is the Army Equipment Material Master (AEMM).

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* The IUID Indicator is not yet a field in FLIS

WebFLIS: Web Federal Logistics Information System

Items Requiring IUID (Cont)

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- WebFLIS and FLIS IUID Indicators
  - Army Directive 2016-21 states business rules for Serialized Item Management (SIM). Items designated for SIM require serialization and IUID. All items requiring IUID will be part of the SIM program. The Army Equipment Material Master (AEMM) will be the authoritative source of IUID Yes/No data.
  - Now that the SIM criteria is finalized, there is a need to relook at previous IUID Yes/No decisions, new decisions made and WebFLIS/FLIS "IUID Indicators" adjusted to document the new decisions. ASA(ALT) is expected to disseminate guidance on this subject.
  - In the future, the IUID Indicator will be determined and set during the provisioning process.

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Items Requiring IUID (Cont)

- Today, which Items require IUID?
  - If an item is tangible personal property owned by DOD and meets one or more of the business rules in Army Directive 2016-21, it generally requires IUID unless
    - The MATDEV or item manager applies for an exception, using a process to be established by Army G4.
  - The following are examples of items sometimes thought to be exempt from IUID that ARE NOT EXEMPT if they meet one or more of the army directive's business rules:
    - Commercial-off-the-shelf (COTS) items
    - Foreign military sales items (See paragraph 3-10, AR 700-145)
    - Non-standard items
  - Until DFARS 211.274-2 is amended, new purchases of delivered items with a unit price of $5000 or greater require IUID, even if they meet none of the army directive's business rules.

DFARS: Defense Federal Acquisition Regulation Supplement
MATDEV: Materiel Developer
NSN: National Stock Number

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Army Directive 2016-21

- Promulgates Army Interim Serialized Item Management (SIM) Policy
  - Is consistent with AR 700-145 and DODI 8320.04
  - If items require SIM, they require IUID.
  - States the criteria for identifying items requiring SIM; it relies heavily on the use of FEDLOG catalog codes.
    - If the item qualifies based on one or more of the catalog codes listed, the assumption is that it should receive SIM and IUID.*
    - If the item is not catalogued but a similar item that is cataloged qualifies based on one or more of the catalog codes listed, the assumption is that it should receive SIM and IUID. *
    - If neither the item nor a similar item qualifies based on a catalog code, the assumption is that it should not receive SIM and IUID.
    - If the MATDEV or item manager thinks that the "assumption" (either to require SIM and IUID or not to require SIM and IUID) is inappropriate, based on a business case, they can ask Army G4 to bless an exception. (*The procedure to do that has not yet been announced.*)

FEDLOG: Federal Logistics Data
MATDEV: Materiel Developer

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Army Directive 2016-21 (Cont)

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- The authoritative source that documents SIM decisions is the Army Enterprise Material Master (AEMM)

** Exception: An item coded pilferable is not automatically assumed to require SIM and IUID. It requires analysis to decide whether there is a business case supporting SIM (unless the item also meets another business rule for SIM).*

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FEDLOG:	Federal Logistics Data
MATDEV:	Materiel Developer

MATDEV IUID Responsibilities

- What are the responsibilities of a MATDEV who acquires "Tangible Personal Property"?
  - Ensure all contracts for new equipment, major modifications and reprocurements of equipment and spares, to include Services contracts requiring the delivery of tangible personal, contain the DFARS 252.211-7003 clause requiring IUID for all items meeting SIM/IUID criteria and that the content and attachments required by that clause are completed, identifying each end and embedded item requiring IUID.
  - Develop and execute an IUID implementation plan that:
    - Lists the items requiring IUID and, as a minimum, contains all of the content required by paragraph 3-1 of AR 700-145.
  - Monitor plan execution and update the plan annually
  - Ensure that the requirement for IUID is annotated within the purchase request for items requiring IUID
  - Be aware that the easiest way to ensure a compliant plan is to use the latest version of the SYSPARS IUID Planning tool. *



*** NOTE: AMIS can assist PMs with this.**

MATDEV – Materiel Developer
SYSPARS: Systems Planning and Requirements Software

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Writing IUID Implementation Plans

- What are some of the major topics that need to be addressed in an IUID Implementation Plan?
  - IUID marking and registration of new acquisitions
  - IUID marking and registration of items already in Army ownership but as yet not marked or not registered.
  - Specifically who will do what relative to engineering of the mark, physically marking the items and registering the items
  - How quality assurance will be addressed to ensure:
    - Correct data correctly encoded in the item mark and the packaging mark
    - Mark that will last the life cycle of the item
    - Item and supporting pedigree data correctly registered in DOD Registry
  - The plan for funding the effort
  - AR 700-145 codifies minimum requirements in its paragraph 3-1

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IUID Implementation Plans

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- AR 700-145 requires Item Managers and MATDEVs to submit and annually review and update IUID Implementation Plans
  - Paragraph 3-1 of AR 700-145 lists *minimum* plan content requirements
  - The US Army Logistics Support Activity (LOGSA) has automated IUID Plan creation in its System Planning and Requirement Software (SYSPARS), a document generation program using a Q&A format.
  - To access and download the SYSPARS software: https://www.logsa.army.mil/lec/syspars/download.cfm
  - The advantage of using SYSPARS is that it ensures that the plan covers all of the required bases (and more) and it offers in multiple choice format “school solutions” for most of the required components of the plan.
  - SYSPARS output is exported to Microsoft Word and then massaged to eliminate “rough edges” and add any additional information the author wants to have in the plan.
  - SYSPARS is frequently updated as guidance and best practices change and should be downloaded when it is to be used to ensure the most current iteration is being used

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MATDEV: Materiel Developer

Using SYSPARS

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- AMIS is the source of the IUID Subject Matter Expertise (SME) for updating of the SYSPARS IUID planning module and can do a good job of fielding questions relating to use of the IUID module of SYSPARS.
- AMIS is developing a SYSPARS IUID Planning tutorial that is expected to be accessible from a link on the AMIS IUID webpage in 4Q16.
- When the draft IUID plan is completed, it requires coordination as follows:
  - First with the LCMC, AMIS and all organizations that the plan says will do something to implement it.
  - Based on that coordination, make appropriate changes and then coordinate with LOGSA.
  - Based on that coordination, make appropriate changes and forward through channels for signature.
  - Once the plan has received final approval, forward a signed copy to LOGSA.
- *We reiterate that SYSPARS is frequently updated as regulations, directives and procedures change and should be downloaded when it is to be used, to ensure the most current iteration is being used. Using an older plan as a template may produce a non-compliant or incomplete plan.*

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Item Mark Quality Assurance

- DFARS 252.211-7003 requires that IUID items' marks be compliant with MIL-STD-130 (latest version)
- MIL-STD-130N w/Ch1 requires that item marks:
  - Be encoded with syntax IAW ISO/IEC 15434
  - Meet mark quality requirements of ISO/IEC 15415, AIM DPM 1-2006 or AS9132 (supplier's option)
- Ensuring that IUID marks meet those standards requires:
  - **Validation** (as defined in MIL-STD-130N w/Ch 1) to ensure that the required information is encoded in the mark using proper syntax– performed with an electro-optical imaging device capable of reading the machine readable information
  - **Verification** (as defined in MIL-STD-130N w/Ch 1) to assess the quality of the data matrix symbol– performed with a electro-optical verification device (NOTE: A :"bar code reader" cannot perform verification.)

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Packaging Mark Quality Assurance

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- DFARS 252.211-7003 requires that IUID items' packaging marks be compliant with MIL-STD-129 (latest version)
- MIL-STD-129R requires that packaging marks:
  - Be encoded using a PDF417 mark with syntax IAW ISO/IEC 15434
  - Meet quality requirements of ISO/IEC 15438
- Ensuring that IUID marks meet those standards requires:
  - **Validation** to ensure that the required information is encoded in the mark using proper syntax. (In the absence of available validation software, validation may be performed manually.)
  - **Verification** to assess the quality of the PDF417 symbol. (NOTE: Few verifiers can accommodate the size of the PDF417 mark. If verification is not possible, readability should be checked.)

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High Risk Areas - #1

- Relying completely on DCMA inspection and acceptance processes to ensure that items are properly marked and registered is not advisable.
  - Note: Some contracts are not administered by DCMA. For those that are, while DCMA has published IUID QA processes to be followed by their Quality Assurance Specialists, DCMA IUID quality assurance has been of variable quality. Types of problems not caught by DCMA include:
    - Incorrect encoding of IUID information in the data matrix marks, rendering the marks useless
    - Failure to include IUID information in the Wide Are Workflow Receiving Report module, resulting in items not being registered in the IUID Registry when accepted by the government
    - Lack of QA of the data submitted in WAWF. One of the most common errors is failure to report the correct part number (part number assigned by the enterprise at asset creation) in WAWF and/or use of an incorrect part number as part of a Construct 2 UII.
  - One important way to help DCMA is to expend the effort to submit PQDRs when problems are found (as required by AR 700-145).

DCMA: Defense Contract Management Agency
QA: Quality Assurance
PQDR: Product Quality Deficiency Report

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High Risk Areas - #2

- Ensuring DFARS 252.211-7003, including a CDRL or other attachment listing all items requiring IUID is included in every contract for tangible personal property.
  - DFARS 211.274-2 (under revision) requires that vendors apply IUID to all delivered items with a unit price of $5000 or greater as well as those meeting other specified criteria.
  - In order to require that IUID be applied to any items other than delivered items with a unit price of $5000 or greater, a list of those items must either be inserted at the appropriate spot in the clause or provided as an attached CDRL or similar document.

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NOTES:

1. DFARS 211.274-2 provides an exception for items acquired under FAR Parts 8 or 12; government may choose to mark with IUID after delivery.
2. A revision of DFARS 252.211-7003 better accommodating the new IUID criteria published in DODI 8320.04 and eliminating the “$5000 mandate” is in process.
3. A revision of DFARS 211-274-2, which will change acquisition IUID criteria to match that already codified in DODI 8320.04, is expected in FY17.

CDRL: Contract Data Requirements List
DFARS: Defense Federal Acquisition Regulation Supplement
DODI: Department of Defense Instruction
FAR: Federal Acquisition Regulation

High Risk Areas - #3

- Ensuring that IUID marks have the correct data, properly encoded.
  - Note: Pratt and Whitney reported early in their IUID program that over 50% of sample marks provided by their subcontractors were encoded incorrectly. To minimize that risk, you might:
    - Require suppliers to provide sample marks prior to production and use one of several free military or commercial programs to check encoding (to “validate”) – and/or
    - Check the part number used in the UII and in Wide Area Workflow (WAWF) to ensure that it is the part number assigned by the enterprise at asset creation– and/or
    - Contractually require vendors to provide DOD Item Description DI-MGMT-81804A Verification and Validation Report (This is mandated by AR 700-145)
    - Contractually require the vendor to (1) validate and verify marks using sampling procedures conforming to ISO 2859-1 and (2) retain the resulting validation and verification reports, subject to government inspection. Then periodically review them to ensure that marks are compliant.
    - Other options

NOTE: DFARS 252.211-7003 (Dec 2013) now requires (for contracts citing an edition of that DFARS statement dated Dec 13 or later) validation and verification of marks with an AIT device but does not require furnishing the government with proof that was done.

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Common IUID Plan Errors

- PD AMIS has reviewed over 500 IUID Plans. These are some of the common mistakes we find:
  - Created using an outdated version of SYSPARS
  - Obsolete or useless references (more is not always better)
  - Specifying the IUID construct to be used (The choice of construct is to be made by the organization assigning the UII, per DFARS 252.211-7003)
  - Specifying that the Issuing Agency Code is to be marked on the item (DFARS 252.211-7003 says that it shall NOT be placed on the item)
  - Inadequately addressing quality assurance of the mark.
    - Per DFARS and MIL-STD, marks require both verification and validation quality checks.
    - Contractually specifying a requirement for compliance with MIL-STD-130N w/ch1 does not ensure that the mark will be in compliance; also DCMA personnel do not have the hardware to measure mark compliance.
    - The only way for the organization that actually makes the mark to ensure it is compliant is to have a verifier, which produces both verification and validation reports.
    - AR 700-145 (18 Feb 2016) specifies a minimum verification/validation requirement.

DCMA:	Defense Contract Management Agency
GFP:	Government Furnished Property
PQDR:	Product Quality Deficiency Report
QA:	Quality Assurance
SYSPARS:	Systems Planning and Requirements Software

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Common IUID Plan Errors (Cont)

- Failing to address quality assurance of the IUID marking of the packaging of items with IUID
  - DFARS 252.211-7003 (Dec 13 and later) requires packaging of IUID items to be marked IAW MIL-STD-129 (latest) = MIL-STD-129R.
  - AR 700-145 requires that QA of the packaging's marks be addressed in the plan. Many plans don't.
  - Validation software for MIL-STD-129 compliance is not yet available, but a manual process is and it is available for download from the AMIS IUID web page.
- Failing to address GFP (a 2012 DFARS 252.211-7007 requirement) for acquisitions
  involving GFP.

DCMA – Defense Contract Management Agency
GFP – Government Furnished Property
PQDR – Product Quality Deficiency Report
QA – Quality Assurance
SYSPARS – Systems Planning and Requirements Software

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Looking to the Futu



- Expect:
  - OSD will complete action to revise the criteria that mandate IUID by amending DFARS 211.274-2 (and eliminating the "$5000 rule").
  - DFARS 252.211-7003 will be revised to better conform to the revised IUID criteria codified in DODI 8320.04.
  - HQDA G-4 and/or ASA(ALT) will publish implementing guidance for Army Directive 2016-21
  - The DOD Guide to Uniquely Identifying Items, Version 3.0, 2 Dec 14 will be revised.
  - ASA (ALT) and the PM community will remain responsible to ensure that newly acquired items requiring IUID are marked prior to acceptance by the government and registered via iRAPT/WAWF.

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DFARS: Defense Federal Acquisition Regulation Supplement
DODI: Department of Defense Instruction
iRAPT: Invoicing, Receipt, Acceptance and Property Transfer
OSD: Office of the Secretary of Defense
WAWF: Wide Area Work Flow

Looking to the Future



- Expect
  - Army G-4 will continue its delegation to AMC of responsibility to ensure that legacy items meeting mandatory IUID criteria in other classes of supply and in Class II, and VII that are not marked by the AMC program are marked and registered and that the industrial base replaces any additive IUID marks with IUID marks embedded in equipment data plates/labels when the equipment undergoes depot-level maintenance
  - As the Army Executive Agent for legacy item marking, AMC will continue executing an enterprise-oriented Army IUID legacy marking program for Class II, and VII; the program will support unit-level application of additive IUID marks to identified unmarked class II and VII legacy items requiring IUID

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AMC: Army Materiel Command
ASA(ALT): Assistant Secretary of the Army, Acquisition Logistics and Technology
IMMC: Integrated Materiel Management Center

Important References

- Army Regulation 700-145, Item Unique Identification
  http://www.usarmyamis.army.mil/CustomerSupport/700-145.pdf
- Army Directive 2016-21, Interim Serialized Item (SIM) Management Policy
  http://www.usarmyamis.army.mil/CustomerSupport/iuid.html
- The DOD Guide to Uniquely Identifying Items (the “bible” of IUID): http://dodprocurementtoolbox.com/page/unique-id/tools
- Military Standard 130N with Ch1 (marking military property)
  http://docimages.assistdocs.com/watermarker/transient/2CCB5DA36DBC4094BD8C20C1E7A59840.pdf
- Military Standard 129R (Military Marking for Shipment And Storage) http://quicksearch.dla.mil/qsDocDetails.aspx?ident_number=35520

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Important References (Cont.)

- AMC Guide to Mark Sustainment (how to replace bad marks) http://www.usarmyamis.army.mil/CustomerSupport/Sustainment%20SOP_5Apr2016.pdf
- Army IUID Implementation Plan http://www.usarmyamis.army.mil/CustomerSupport/Final-ImplementationPlan-v3-OGC_5MAR.pdf
- Systems Planning and Requirements Software (SYSPARS) - program download and user guide (currently under revision to conform to AR 700-145) https://www.logsa.army.mil/lec/syspars/download.cfm
- AMIS IUID Web Page (a gold mine of links to IUID resources) http://www.usarmyamis.army.mil/CustomerSupport/iuid.html

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Where Can You Get Help?



- AR 70-1
  - 6–15. Item unique identification
    - *b. The PMs will—*
      - "(8) Use the PM, J–AIT" (now AMIS) "as a source for AIT products and technical expertise"
- AMIS website: http://www.usarmyamis.army.mil/CustomerSupport/iuid.html
- AMIS IUID POC:
  - Email: usarmy.belvoir.peo-eis.list.amis-iuid@mail.mil
  - (703) 806-0547 or DSN 656-0547

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When it comes to most aspects of IUID implementation, we've been there and done that, or know people who have.